

WHAT IS CLAIMED IS:

1. A method for heating a printing substance and/or toner, in an electrophotographic printer, having at least one standing wave produced by at least one cavity resonator, wherein printed matter is caused to move through the resonator gap, wherein the power distribution profile of the microwave applied by the resonator is shaped or configured for specific application requirements.
2. The method of Claim 1, wherein the power distribution as a function of position is adjusted or changed.
3. The method of Claim 2, wherein the power distribution is adjusted or changed over the width transversally of the transport direction of the printed matter.
4. The method of Claim 3, wherein the power distribution as a function of position is divided substantially into three areas, two areas from the walls of the resonator to the middle in which the power remains constant, and the area between them, which represents a curve having a curvature such that the power distribution is trapezoidal, and by the fact that the side steepness is adjusted or changed.
5. The method of Claim 4, wherein the power distribution as a function of position has a substantially trapezoidal profile and that curvature of the middle base area of the trapezium is adjusted or changed to have a positive (convex) or a negative (concave) shape or not to have such curvature (flattening).
6. The method of Claim 5, wherein the power distribution profile is shaped as a rectangle (U-shaped).

7. The method of Claim 3, wherein the power distribution profile as a function of position is asymmetrical with respect to the centerline.

5 8. The method of Claim 1, wherein the power distribution varies in time.

9. The method of Claim 1, wherein at least one geometrical parameter of the resonator is adjusted or changed at least relative to at least another
10 geometrical parameter of the resonator.

10. The method of Claim 9, wherein the width of the resonator gap is adjusted or changed.

15 11. An apparatus for heating a printing substance and/or toner, in an electrophotographic printer, having at least one resonator with at least one cavity for microwaves emitted by a microwave transmitter, microwave source, or microwave generator, which produces at least one standing microwave, and which has a gap through which printed matter is caused to move, wherein the resonator is
20 configured for power distribution of the resonator-applied microwave which is preset and adjusted for each application requirement.

12. The apparatus of Claim 11, wherein the power distribution as a function of position is adjusted or changed.

25 13. The apparatus of Claim 12, wherein the power distribution is adjusted or changed over the width transversally of the printed matter transport direction.

14. The apparatus of Claim 13, wherein the power distribution as a function of position is divided substantially into three areas, two areas from the walls of the resonator to the middle, in which the power remains constant, and the area between them, which represents a curve having a curvature such that the power distribution is trapezoidal, and by the fact that the side steepness is adjusted or changed.

15. The apparatus of Claim 14, wherein the power distribution as a function of position has a substantially trapezoidal profile and that curvature of the middle base area of the trapezium is adjusted or changed, more specifically, to have a positive (convex) or a negative (concave) shape or not to have such curvature (flattening).

16. The apparatus of Claim 15, wherein the power distribution profile is shaped as a rectangle (U-shaped).

17. The apparatus of Claim 13, wherein the power distribution profile as a function of position is asymmetrical with respect to the centerline.

18. The apparatus of Claim 11, wherein the power distribution varies in time.

19. The apparatus of Claim 18, wherein at least one geometrical parameter of the resonator is adjusted or changed at least relative to at least another geometrical parameter of the resonator.

20. The apparatus of Claim 19, wherein the width of the resonator gap is adjusted or changed.

21. The apparatus of Claim 20, wherein the end face of the resonator remote from the microwave entry side is closed with a cavity cover, which has a recess extending in a direction parallel with the printed matter transport direction.

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22. The apparatus of Claim 21, wherein the recess is made as a groove in the cavity cover and extends from one wall of the cavity to the other.

23. The apparatus of Claim 22, wherein the depth of the recess is
10 preset or adjustable.

24. The apparatus of Claim 23, wherein the width of a border or borders of the recess transversally with respect to the printed matter transport direction is preset or adjustable.

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25. The apparatus of Claim 11, wherein the cavity area located opposite to the gap as seen from the microwave entry has at least one flange protruding inwardly in the cavity, which is used as a limiting surface portion for the gap.

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26. The apparatus of Claim 11, wherein the cavity area located on the side of the gap as seen from the microwave entry has at least one flange protruding inwardly in the cavity, which is used as a limiting surface portion for the gap.

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27. The apparatus of Claim 26, wherein the width of the flange edge or of a plurality of flange edges transversally with respect to the printed matter transport direction is preset or adjustable.

28. The apparatus of Claim 27, wherein the cavity area located on the side of the gap as seen from the microwave entry has at least one partition wall portion partly dividing the cavity area, which runs in parallel with the printed matter transport direction.

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29. The apparatus of Claim 28, wherein separate microwave sources are connected to each cavity area.

30. The apparatus of Claim 28, wherein a common microwave
10 source is connected to the cavity areas, which is used to supply the cavity areas via a power splitter.

31. The apparatus of Claim 28, wherein the partition wall portion
has, at least on one side, a shutter extending in parallel with the plane of printed
15 matter transport through the gap.

32. The apparatus of Claim 31, wherein the distance from the shutter to the edge of the partition wall portion facing the gap is preset or adjustable.

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